Incorporating "The Illuminating Engineer."

Light and Lighting

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Preparing for Another Winter

AFTER the termination of a second year of war preparations are now being made for another winter. The Double Summer Time was a great boon during the past months, but we are now approaching a period of long dark nights when the dangers associated with the black-out become more imminent, and when the long lists of fatal accidents on the roads may again become formidable.

We present in this issue (p. 127) a summary of data collected by the Royal Society for the Prevention of Accidents, from which two outstanding conclusions may be drawn—(1) it is the pedestrian who suffers most in the darkness, and (2) the number of fatal accidents to pedestrians are least during moonlight periods but mount alarmingly on dark nights.

Why is it that accidents to pedestrians are, relatively, so much greater during hours of darkness? We hazard one answer—it is because he, unlike motorists and cyclists, does not carry a light. Let him do the next best thing, carry or wear some white object of substantial size. On this the preservation of his life may depend.

If moonlight is so precious, it may be assumed that war time street lighting is also of substantial value. If much weaker than moonlight it is vastly better than complete obscurity. Let Local Authorities, then, not despise this priceless boon—and let the Powers That Be, with two years of experience behind them, and with the aid of the best expert advice obtainable, consider whether some little further alleviation of the obscurity could now be permitted without detriment to the objects which they have in view.

Lighting and Reconstruction

During the period that has elapsed since the I.E.S. annual general meeting, when the Council was given such an emphatic mandate to "get on with" the study of the part to be played by lighting in reconstruction, quite a lot has been done behind the scenes. A representative main committee to review the whole position was quickly formed, numerous sub-committees have developed under its wings, and these in turn seem likely to branch out into sub-committees. In fact, there seems a possibility that the whole organisation may become nearly as elaborate as the nest of committees dealing with A.R.P. lighting problems, on which at one time nearly a hundred members were engaged.

At present not a great deal can be said in regard to the work of these committees, but their task of looking into the future will include the study of such questions as post-war lighting in streets, schools, offices, factories, etc. It is expected that the production of informative and simple pamphlets will form an essential part of their work. Other tasks include the examination of existing rules and regulations bearing on lighting, and the formation of liaison contacts with other bodies interested.

Mr. Ackerley, in his address last May, mentioned some of the uncertainties attending these speculations about the future—some psychological, some financial—but these need not deter us in our efforts to prepare for the time to come. It may be said, and is doubtless true, that most of the available experts are fully occupied with war work. Yet to spare a little time for these reconstruction problems has a certain "escape value" besides being applied to what is, taking the long view, a vital and beneficial purpose.

The programme seems likely to demand the services of a considerable number of I.E.S. members, and the honorary secretary would be glad to hear from any who would be prepared to share in the good work.

Forthcoming I.E.S. Meetings

The Illuminating Engineering Society will open its session in London on October 14, when the new president, Mr. W. J. Jones, will deliver his address. The meeting will take place at 2.30 p.m. at the E.L.M.A. Lighting Service Bureau (2, Savoy-hill, London, W.C.). Mr. Jones is also arranging to visit in turn and address the various Centres of the Society, where he may count on a very cordial welcome.

We understand that the second item in London, on November 11, is to be a paper by Mr. H. C. Weston, who will devote special attention to after-war prospects of industrial lighting, as well as reviewing present problems, and that most of the subsequent papers will deal with various phases of lighting and reconstruction which the Society is now studying.

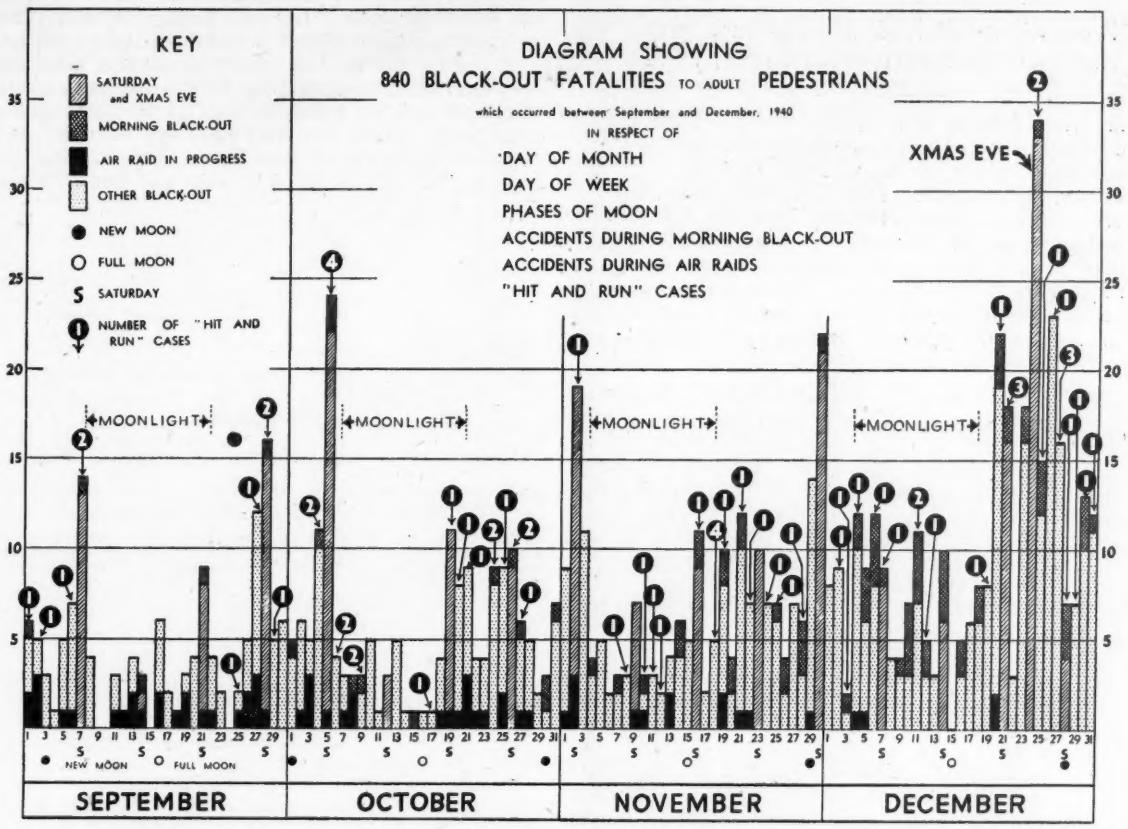
The various Centres are also well advanced with their programmes. A summary of the chief items in view, both in London and in other cities, is to appear in "The Transactions." We are glad to learn that the most recently formed group of I.E.S. members in the South Wales area has its programme well in hand, and is striking out a line of its own, in which co-operation with the University and local engineering organisations in Cardiff will be a leading feature

As we go to press we learn of another development of considerable interest. Steps are being taken to form a new group of I.E.S. members in the North-Eastern area. At a meeting held in Newcastle on September 11, over which Mr. J. W. J. Howell, chairman of the North Midland Centre, presided, this proposal met with a very favourable reception. Members are already being enrolled and meetings will no doubt be arranged in due course. For the present the group will operate under the North Midland Centre, but one can foresee that in due course it will attain the status of a fully recognised and independent centre.

Black-out Lighting Demonstration in the United States

Discussions on war-time lighting in the United States seem to have been concerned so far mainly with such matters as the protective lighting of industrial plants and utilities against sabotage and the use of light to ensure maximum production in factories, though there has been some speculation on the problem of vision at 0.0002 ft.c. (the value of war-time street lighting in Great Britain). According to "Illuminating Engineering" (July, 1941), America had its first black-out lighting demonstration on May 14, when some 7,000 people, including officials from about fifty electric utility companies, the army and city governments, assembled at Lynn (Mass.), to witness a display arranged by General Electric engineers. The lighting was provided by twelve specially designed black-out luminaries spaced 100 ft. apart along Parkland-avenue. As the regular lights were turned off aeroplanes droned overhead, adding a realistic note. With the black-out lights of about one candlepower each replacing the 4,000 c.p. street lamps it was possible to see persons and objects at a distance of about 25 ft. The black-out luminaries are shaped like an admiral's hat and use 2½ watt argon gasfilled lamps. Such lamps emit some ultra-violet radiation which suffices to render luminous fence posts covered with fluorescent material. It is stated that "the light provided cannot be seen at more than a few hundred feet above the ground," and it is interesting to note that the one candlepower mentioned agrees closely with the maximum value permitted by BS/ARP37 for British standard units with a nominal mounting height of 20 ft., which are considered to be quite unobjectionable from the standpoint of civil defence.

Fatal Accidents in the Black Out



This diagram, which appeared in Road Accident Bulletin No. 8, May, 1941, issued by the Royal Society for the Prevention of Accidents, shows in a striking manner the value of moonlight in alleviating dangers of the black out. All the high "peaks" occur during moonless periods; on the other hand when the moon is at the full accidents are reduced to a minimum.

Lighting engineers concerned with outdoor lighting would do well to study and ponder the very useful series of road accident bulletins being issued by the Royal Society for the Prevention of Accidents (formerly the National "Safety First" Association).

During the first twelve months of war 8,355 persons were killed on the roads, of whom nearly half (4,093) were pedestrians. In the case of cyclists, motor-cyclists, and motor-drivers the number killed during darkness was less than during daylight, but in the case of the pedestrian the position is reversed. 3,177 were killed in darkness and, as compared with 916 during daylight, *more than three times as many*. It is evidently the pedestrian who suffers most severely from the risks of the black-out. These facts are taken from Bulletin No. 11 (July, 1941). It is feared that during the second year of war the fatalities will exceed 10,000. Be it noted, too, that only fatal accidents are included in the list. To these must be added many cases of injury and disablement.

Accidents are most serious during the winter months. Thus, 4,380 people, about half the above total, were killed during the three months to December, 1940. It has been remarked from time to time how the proportion of fatal accidents occurring during darkness has tended to increase steadily—a consequence doubtless of the tendency to make increased use of the roads by night. But it is most significant that, in spite of the fact that people naturally avoid the use of the roads during the black-out, the proportion of night accidents reached an unprecedented value—as much as 80 per cent. of the total—during mid-winter, 1940.

By the courtesy of the Royal Society for the Prevention of Accidents we reproduce above a diagram from another of their bulletins (No. 8, May, 1941), which is most instructive in showing how valuable is moonlight, as compared with complete obscurity, to the pedestrian. The records of fewest accidents almost invariably coincide with a moonlight period, whereas all the high accident "peaks" are found during periods when there is no moon. In the moonless period at the end of the year (December 17-31), marked by particularly dark nights and bad weather, there was a greater number of fatal accidents than at any other time. It is also instructive to notice that all of the "peaks" occur on a Saturday, except the highest of all, on Christmas Eve. This is evidently a reflection of the fact that more people are moving about on the roads on Saturday nights, paying week-end visits or enjoying some mild festivity.

The value of moonlight, thus demonstrated, is of great interest in showing the direct bearing of the presence of light, even if of weak intensity, in reducing the accident rate. (It is curious, however, to observe that, according to a statement in another bulletin, the effect of moonlight, so striking in the case of pedestrians, does not appear to influence greatly accidents to cyclists.)

Elsewhere in the bulletins other interesting facts emerge. A common form of accident is that arising when people, emerging from a brightly lit interior (e.g., a public house), step suddenly into the dark roadway. It need not be too hastily assumed that lack of sobriety is the explanation; in many cases the mishap is doubtless due mainly to the fact that the sufferer has not waited sufficiently long for his eyes to become adapted to the darkness.

One very odd fact recorded is that quite a number of fatal accidents were due to collisions between pedestrians.

Outdoor Lighting Problems in War Time

Precautions involved in compliance with the Lighting (Restrictions) Order, 1940

Communicated

In what follows our contributor summarises experience gained in the course of the inspection of outdoor factory areas, wharves, transporters, cranes, barges, etc. Each of these situations presents a different problem. Standard A.R.P. fittings, intended to furnish low and even illumination over a considerable area, may require modification when applied to special cases of local lighting, and in many instances the form of fitting is best decided by inspection on the spot.

In surveying various types of factories, wharves and similar premises, with their respective conveying appliances, for the purpose of advising on the lighting permissible under the above Order and the methods of obtaining the best results from this degree of illumination, problems have arisen with regard to the best types of fittings to be used. It has been found impracticable in many cases to use standard fittings and adaptations have therefore been necessary. It seems desirable that the types of fittings found to be satisfactory should be made more widely known.

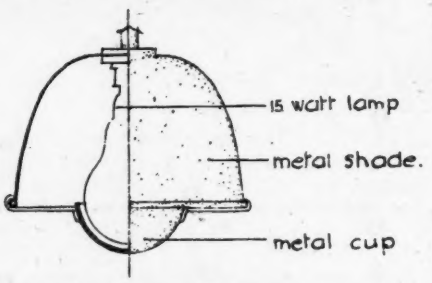
The standard BS/ARP fittings Nos. 16, 20, 21 and 37, as illustrated in Fig. 1, have been found eminently suitable for large open spaces where no effective surfaces exist, apart from the ground. These conditions, however, rarely obtain, as, in the majority of factories, lighting is generally required in confined spaces. The usual positions where light is required are roadways between buildings, small yards, open sheds, jetties, piers, loophole openings in warehouses, etc. In such cases dispersive light may have many objectionable features, owing to the proximity of vertical faces of buildings. Where walls are of light colour and nearer to the source of light than the mounting height, they assume a higher brightness than that arising at ground level and reflect light above the horizontal. The worst cases, however, are those where illumination is required above or adjoining water fronts, as there is great risk of reflection from the surface of the river, canal or pond, which is visible from the air from a long distance (e.g., a navigation light on tugs has been seen to cause reflection on the water for almost the full width of the River Thames).

To overcome these difficulties it has been found possible either to adapt the standard fittings or to design others of simple pattern to suit the particular requirements.

The original standard BS/A.R.P./16 fitting (see Fig. 1) can be modified for a spacing of not less than four times the mounting height by the inclusion of a half baffle with a vertical fin for attachment to the base of the main shade. This has been designed to cut off light spillage from either side as required and so avoid any illumination of vertical faces. This would apply generally to a lighting point in the form of a bracket. Some discretion may, however, be expedient in the use of this device, which, whilst doubtless quite satisfactory if applied to a single unit, might possibly be open to objection if applied to a considerable number—because the vertical fin itself becomes an illuminated object, from which some light may be emitted upwards.

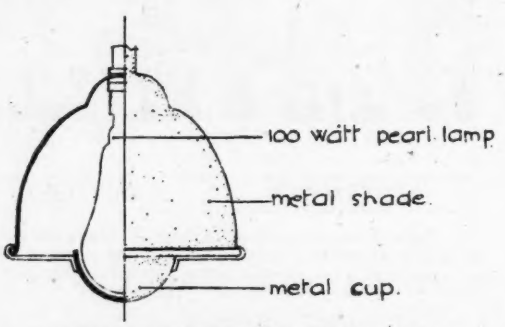
In addition, this standard fitting can be modified for a spacing of not less than twice the mounting height, which will restrict the area of light spill and will meet many cases, though not all, e.g., positions of roadways between buildings or on water fronts. In the case of roads or passages between buildings and on water fronts it is generally necessary to restrict light to one side to avoid reflection from the surface of water.

Where a light point is required over a roadway to assist movement or work between buildings, a skirt has been provided to the fitting in some cases, varying in depth with the width of light spill necessary (see "A" in Fig. 2). In certain positions it may be found necessary to fill in the bases of these skirts, except for a slot, to restrict the light spill still more (e.g., where the roadways are narrow) and to avoid illuminating vertical faces, as shown in "B" in Fig. 2. Where standard fittings are not available a



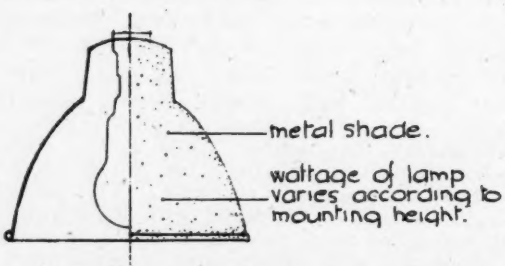
BS/ARP 16. Giving illumination of 0.002 foot candles.

Spacing. **The spacing shall not be less than four times the mounting height above ground level, and the fitting shall be maintained in a vertical position. Inside of shade and cup painted dull black for a mounting height of 10 feet, dark grey for 15 feet, light grey for 20 feet.**



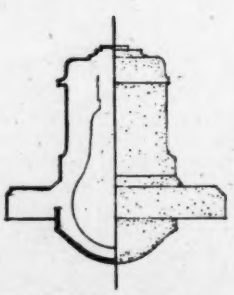
BS/ARP 20. Giving illumination of 0.02 foot candles.

Spacing. **The spacing shall not be less than four times the mounting height above ground level, and fitting shall be maintained in a vertical position. Inside of shade and cup painted as above.**



BS/ARP 21. Giving illumination of 0.2 foot candles.

Spacing. **Fittings should be installed at heights not less than 10, 15 and 20 feet, and illuminated by 15, 25 and 40 watt pearl lamps respectively.**

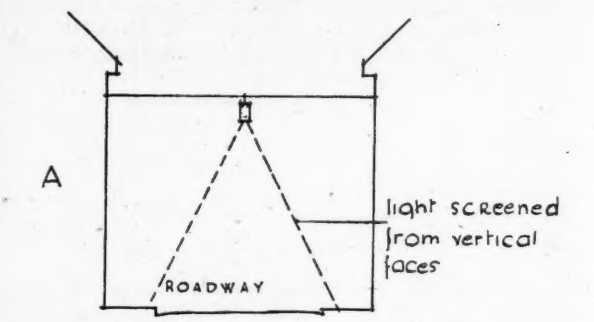


BS/ARP 37. A street lighting fitting giving illumination of 0.0002 foot candles. Starlight.

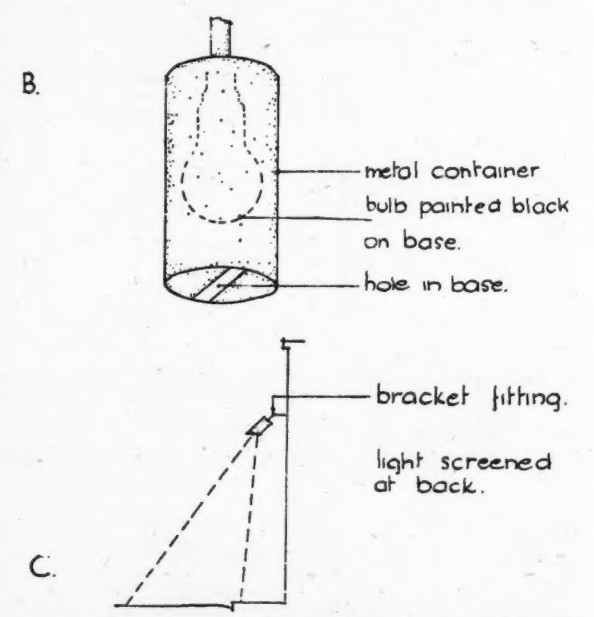
FIG. 1. LIGHT FITTINGS RECOMMENDED IN STANDARD SPECIFICATIONS (A.R.P. SERIES).

metal container, having the base filled in except for a slot as above, has been used, and in some instances the base of the bulb has been painted dead black to restrict the illumination intensity still further, i.e., to bring it to the 0.002 ft.c. limit. The inside of the containers may be painted in accordance with the schedule of colours given in BS/A.R.P./16.

Where the fitting is attached to a wall as a bracket, an unduly high illumination is apt to be spilt on the face immediately adjoining the fitting, which, however, gradually diminishes as ground level is approached. In these positions it has been found that metal containers, of depths and shapes varying with the spill of light required, are more satisfactory than the standard fitting. The exact details of these fittings require to be settled on the spot, but in all cases the base of the fitting nearer the wall has to be filled in, the area of such filling being determined by experiment. The one factor stipulated in common for all these fittings is that, in erection, the bases must be kept level so as to avoid light showing above the horizontal, as shown in "C," Fig. 2.



Light fitting fixed over roadway. This fitting is to give light to assist movement between buildings and at the same time avoid illuminating vertical faces.



Light fitting fixed to bracket on wall. This fitting prevents a high intensity of light being spilt on to face of wall. The base of fitting nearer to wall is filled in and must be fixed horizontal.

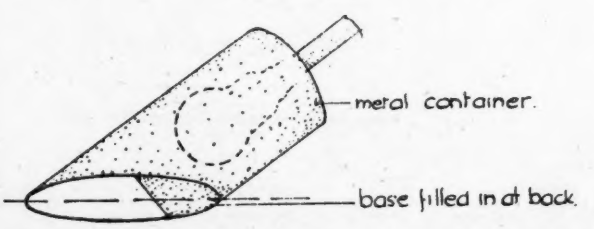


FIG. 2. SPECIAL FITTINGS WITH THE BASES PARTIALLY FILLED IN TO PREVENT SPILL OF LIGHT.

The provision of an apron to a standard or special fitting to cut off light from a nearby wall or other vertical face has been found entirely unsatisfactory, as, being close to the source of light, it is very brightly lit and the reflection from the face of the apron becomes visible for a very considerable distance: even though painted dead black it appears as a silvery light.

Another important point is that the fixing of lighting fittings under bridges or covered ways has the disadvantage of silhouetting these structures from above against the light. Similar difficulties arise with open-sided buildings, loading banks, loopholes, etc. In such cases steps must be taken to limit the spread of light and to confine this well within the area of the roof above. The skirting or screening of standard fittings and the filling in of bases has been found to be satisfactory. Alternatively special fittings to limit the spread and candlepower may be used. In dealing with loopholes, the height of the opening should be reduced as far as possible by rolling shutters or screens. Similar steps are necessary at loading banks, but here side screens are often required as well to prevent light becoming visible when vehicles enter and leave the banks. In all these cases the angle of visibility of "glow" from the internal lighting has to be taken into consideration.

In addition to general lighting as set out above, certain special points frequently require illuminations, e.g., time clocks, gauges, etc. Various types of fittings have been devised for these situations (see "D," Fig. 7). They consist generally of metal containers, fitted either vertically or at an angle, with the bases filled in except for a small hole to direct the light to the point for which illumination is required. As far as possible the bases are kept level, though this is not always practicable. Where however any deviation from horizontal has been allowed, the fittings are under cover of archways, etc. Vertical gauges with rising and falling readings, if screened, can be provided with a fitting in the form of a long tube with a slot down the side to direct light on to the scale. Here again the exact type to be employed must be determined on the spot.

Similar troubles as regards width of light spill are apt to occur with the street lighting fittings, (A.R.P./37). The standards are often sited much closer to buildings than their mounting height with the result that the intensity of light on the vertical faces may be of a higher category than 0.0002 ft.c. (At times some Local Authorities have used this type of lighting adjoining rivers and canals, causing reflection visible from the air which has led to complaints from local inhabitants.) The light spill on vertical faces in some instances has been overcome by providing a metal skirt to the fittings and by blocking up a portion of the aperture through which light is emitted, as required in Clause 5 of BS/A.R.P./37. This blocking requires to be done on the side farthest from the face from which it is desired to cut off the illumination. This method can only be regarded as partially successful, since the whole of the light inside the fitting is reflected from side to side internally.

Crane and Transporter Lights

The lighting for this type of machinery or plant presents special problems and each case must be considered according to the work to be performed and the location of the sites. This is especially so on or near water fronts. (In peace time there appears to have been competition between the internal lighting of the cabins and the external lighting on the wharf or other working point. In many cases the cabins were lighted by three or four 100-watt lamps and the external lighting was increased to a much higher intensity by flood lighting the wharf to enable the crane operator to see the position where the crane has to collect or deliver loads.) At the present

time high internal lighting of cabins is definitely unsatisfactory, not only because of the difficulty of blacking-out the windows, but because the crane operator is not able to see external objects at all clearly. The best method is to eliminate almost entirely the internal cabin lighting.

Frequently it is only necessary for the operator to see luffing marks and height gauges inside the cabin and occasionally the cable drums in addition. All general lighting in these cabins can be cut out, leaving a spotlight of low intensity on the guide marks and, if required, on the cable drums, these lights being so arranged that no light is visible from the outside. This can be contrived by enclosing a pearl lamp of not more than 15 watts in a metal container having the base filled in except for a very small hole, about ¼ in. square, or in other instances, a slot in the side approximately ⅛" wide, as shown in "A" and "B," Fig. 3. It has been found that by these methods the operator obtains a reasonable view of the guide marks and at the same time can see outside the cabin to the points of loading and unloading. Many crane drivers have stated that this system of lighting is preferable to the peace-time methods of competitive internal and external illumination mentioned above.

At many places light is regarded as necessary on the jibs of the cranes to illuminate the loads. This can generally be allowed if the light is provided with a deep container heavily weighted at the bottom and with a short pendulum suspension, only sufficient to allow the container to remain in a vertical position irrespective of the angle of the jib. The base of these containers can be filled in except for a circular hole about 1" in diameter, the lamps being varied in wattage from 15-60, according to the length of the jib and the height above the spot where loading takes place (see "C," Fig. 3). The ball and connections to the grab or load can be painted white to render these more easily visible to the operator. This method has not, however, been found entirely satisfactory in the loading of coal and other dusty materials.

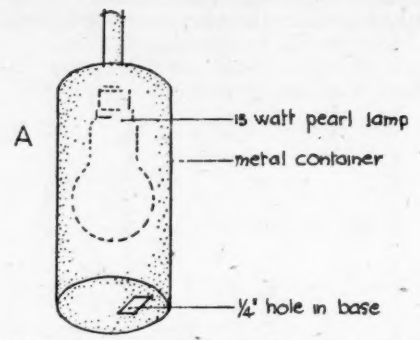
With transporter and telpher cranes it is necessary for the operator to see the end of the travel of the lifting trolley. In these cases a light can be provided at both back and front of the horizontal jib to prevent overrun, the jib being painted white to pick up the light from the fitting and to silhouette the traveller when it reaches the limit of movement. The wattage of the lamps allowed in these positions should not exceed 15, and the lamps should be enclosed in metal containers with the bases partly filled in and kept horizontal ("D," Fig. 3).

The ladders leading to these crane cabins require illumination to allow the operator to ascend and descend with a reasonable degree of safety. This is specially necessary in the swinging type of crane, as it is essential that the ladders which are in several lengths should accurately abut. A 15 watt lamp enclosed in a metal container with the base filled in except for a small circular hole may meet these cases though sometimes a slot may prove better than a circular hole where the steps are set at an angle. (See "A" and "B," Fig. 4.) In all cases the use of these lights must be restricted to the periods when the man is actually ascending to or descending from the cabin, consequently a two-way switch is necessary. Telpher cranes have generally been provided with a fitting similar to that allowed on jib ends.

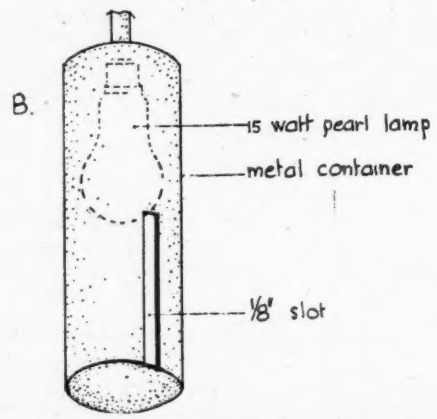
Lighting is often required under the portals of transporter cranes to illuminate trucks and to allow safety of movement under the portal. Here care must be taken not to cause silhouette and, where water adjoins, to prevent light spillage and consequent reflection.

Hoppers

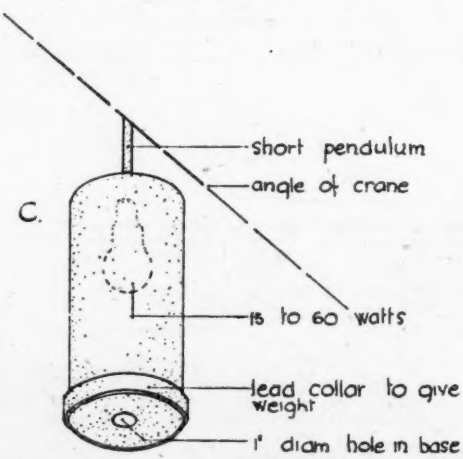
The method of illumination of hoppers is dependent upon their position in relation to the level of the crane cabin. Where the cabin is above the top of the hopper a special fitting has been devised to be mounted above the hopper, the base being filled in to restrict the light to the inside of the hopper ("C," Fig. 4). Where the cabin is below the top of the hopper (though there are probably few of these cases), it has been found efficacious to paint a white strip about 9 in. wide immediately below the top rim of



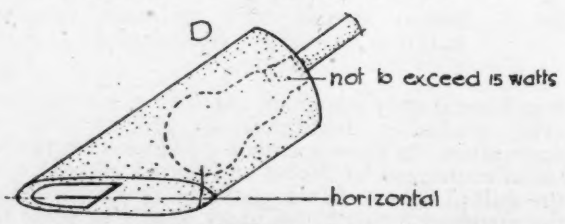
Crane and transporter lights. Fitting designed to give spot light only on to luffing marks and height gauge inside cabins.



Strip light. Alternative method of giving strip light. This fitting may be fixed horizontally with slot on under side.



Cranes. Fitting designed for fixing to crane jib to illuminate loads. This fitting is designed to remain vertical when angle of jib is altered.



Cranes, etc. Fitting designed to give silhouette illumination of a certain part only on the travel of the lifting trolley of transporter and telpher cranes.

FIG. 3. TYPES OF FITTINGS DESIGNED TO COMPLY WITH LIGHTING (RESTRICTIONS) ORDER IN CASES WHERE STANDARD BS/ARP FITTINGS ARE IMPRACTICABLE.

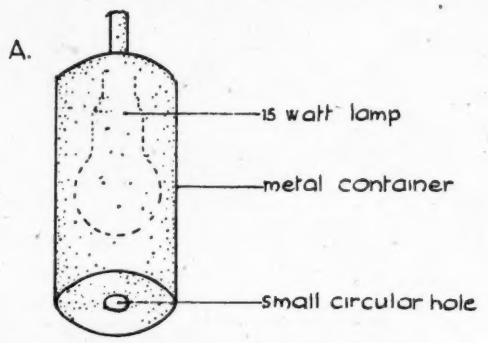
the hopper and to provide a light in a cylinder with a longitudinal slot to illuminate the white strip, as in "D," Fig. 4. This enables the crane operator to judge the position of his load in relation to the hopper.

Hopper Discharge to Lorries and Rail Trucks

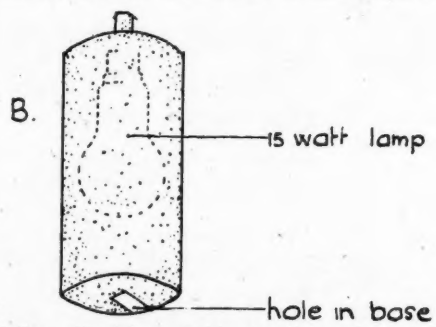
Illumination in these positions must be restricted to the inside of the lorry or truck, particularly if water adjoins. Moreover, if dispersive lighting is used the hopper is silhouetted against the light. A 15-watt bulb enclosed in a metal container with the base filled in except for a small hole or slot will frequently meet the case ("A." Fig. 5). In these instances the lighting should be practically vertical if the materials being loaded are of a dusty nature, otherwise the dust breaks up the light by diffusion.

Ship Lighting

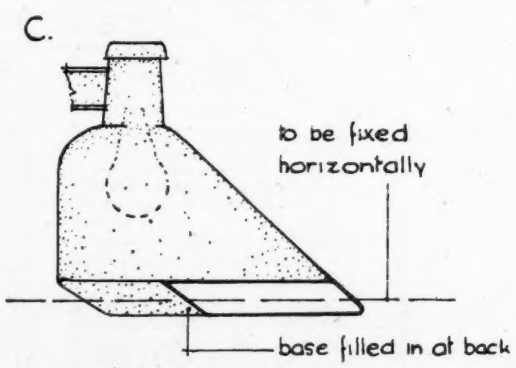
This generally means a certain amount of illumination in the holds, which can easily be provided by means of standard dispersive fittings suspended under the deck. In some instances, however, it may be necessary to provide lighting above deck until such time as sufficient cargo has been removed from the hold to permit lighting below deck—reverse



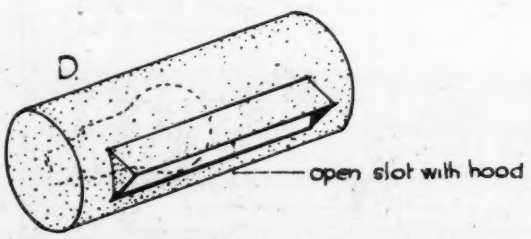
Ladders. Fittings designed to give illumination on to ladders used by the crane operator to reach cabins. (Lights are only on when required for use.)



Stairs and Ladders. Alternative method for giving light as above when stairs are set at an angle.

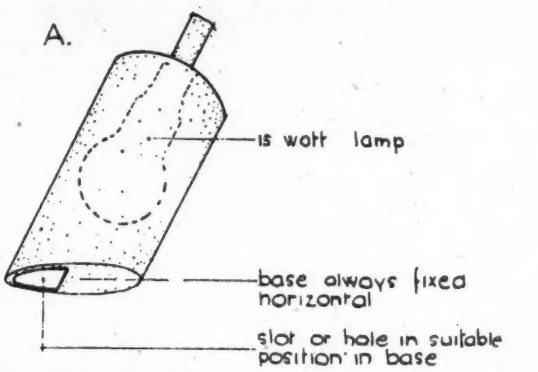


Hoppers. Fitting to be mounted above hopper and light directed into hopper. This type is used when cabin is above the hopper.

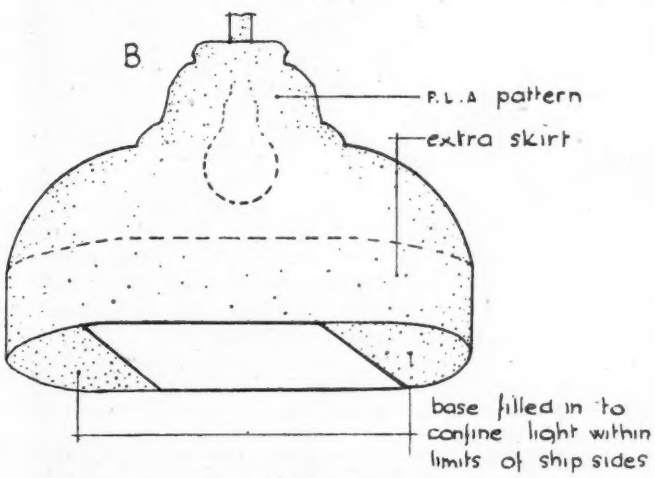


Hoppers. Alternative method for lighting hoppers—for use when the cabin is below the top of the hopper. The container is fixed so as to illuminate a white strip painted inside the rim of hopper.

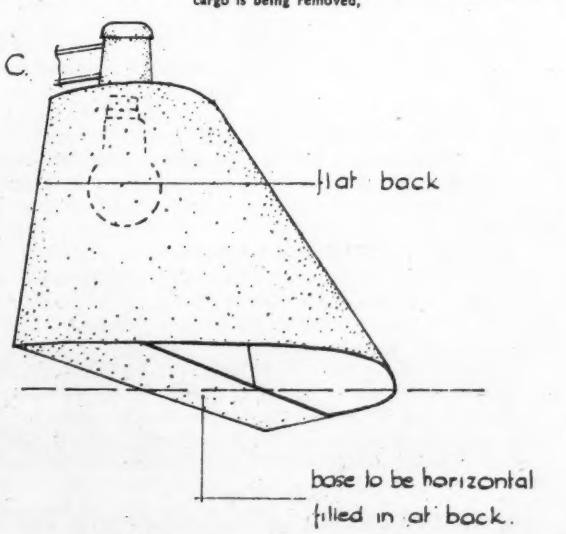
FIG. 4. FURTHER EXAMPLES OF SPECIAL FITTINGS WITH RESTRICTED EMISSION OF LIGHT.



Trucks and Lorries. Designed to give illumination in a vertical direction into lorry or truck.



Ship lighting. Designed to be used when lighting is required above deck while cargo is being removed.



Barge loading from ships or wharves. Fitting to be hung on ship's side and fixed so that light does not show above horizontal or spill on water.

FIG. 5. FITTINGS FOR USE ON LORRIES, SHIPS, WHARVES, ETC.

arrangements are, of course, necessary when loading. Where lighting is required above deck it is possible to fix a spar or similar contrivance above the hatch with the fitting secured to it. These fittings can usually be large open shades of the P.L.A. pattern, with bases partly filled in to restrict the light to the limits of the ship sides. These fittings must be stayed to prevent swaying, as shown in "B," Fig. 5. Where the cargo is of a dark colour it is helpful if the men in the hold wear large patches of white American cloth on their backs so as to allow the crane operator to see them against the dark background.

Barge Loading From Ships or Wharves

This requires very similar lighting to that of ship holds. Dispersive fittings secured under the coamings of the barges generally meet the case, but this is only possible during part of the loading and unloading periods. When the cargo is close to the deck level fittings can be hung on the ship sides, but care must be taken to ensure that these fittings do not tilt and give light over the horizontal. It is also necessary to screen the light from the ship's side. These fittings have been made with a flat back with the bases partly filled in (see "C," Fig. 5). Light spill on to water surfaces must be avoided and careful adjustment of these fittings must be made. All light must be confined to the limit of the barge hold. Another type of fitting can be hung on the coaming of the barge or supported on a tripod standing on the barge deck. The fitting must be screened in the front with a motor-car head lamp mask, the fitting being tilted slightly downwards so that any variation in the barge level will not cause light to be visible above the horizontal ("A," Fig. 6). With coal or other dusty materials, however, a fitting of the same type as described for ship's sides operates more satisfactorily.

Where barges have deck loads in addition to those in the hold, it may be found necessary to rely on ship side lights or to provide a fitting on the quay side or on a tripod on the barge deck. Tripods are not entirely satisfactory, however, as they are liable to be knocked over or wrongly used.

Quays, Jetties and Wharves

In these cases the proximity of water, vertical wall faces, crane bases, hoppers, and other erections complicate the problem, and each position must be examined and fittings arranged accordingly. In some instances light is required for working purposes as well as an aid to movement. Various types of fittings have been devised to prevent spill of light on water and vertical faces or to confine the light to those portions of the piers, jetties, etc., where actually required, the standard of illumination varying with the user.

Some degree of lighting is required to enable barges to be warped alongside wharves and tied up, etc. The use of hand torches is deprecated, as no control can be exercised over them. A hooded fixed light to be switched on when required is to be preferred.

Steps and Ladders

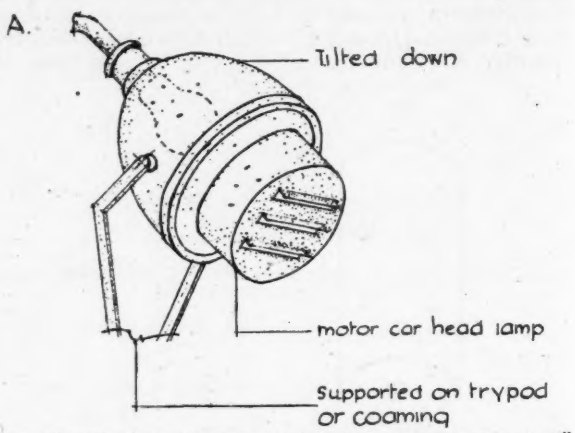
On many wharves, piers, etc., steps and ladders are provided to give access to lower decks of piers and jetties, or to plant which has to be operated. These ladders often adjoin water and frequently have no screen or cover of any description. In these cases a low powered lamp enclosed in a metal container with the base filled in except for a small slot or circular hole can often meet the situation. Where a slot is formed it must restrict the light to the steps alone.

Gangways

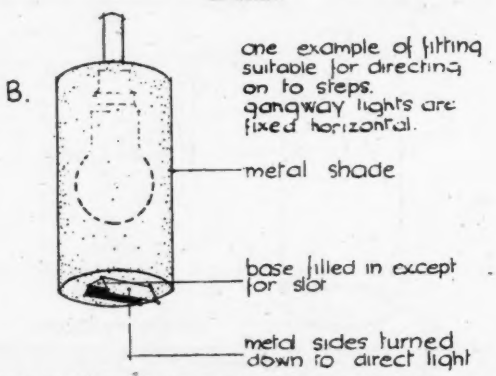
The position of these varies with the ship and the mooring points and the lighting point must therefore be movable also. The fitting cannot be fixed to the gangway as this rises and falls with the level of the ship at the various states of the tide and this alters the angle of the base. If mounted on a tripod stationed on pier or jetty, with the lamp enclosed in a metal container of which the base is filled in except for a slot, giving light along the length of the gangway and restricted to the width of the gangway, the case can generally be met. (See "B," Fig. 6.)

Loading Banks

These are as a rule in roofed buildings and have open fronts to enable vehicles to back in. Lighting must be confined to an area well within the space

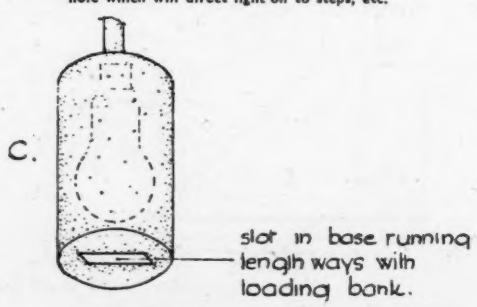


Barges. Alternative fitting designed to give light for barge loading and not spill on water.

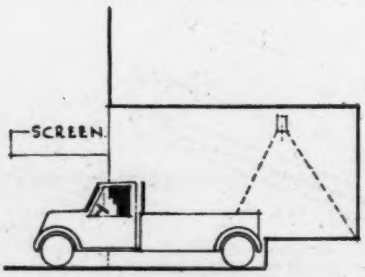

B.
one example of fitting suitable for directing on to steps. gangway lights are fixed horizontal.
metal shade
base filled in except for slot
metal sides turned down to direct light

Quays, jetties and wharves. Fittings are designed for individual cases, each giving working light without a spill on to water or vertical faces.

Steps and gangways. Shades are fitted with solid base plates except for a slot or hole which will direct light on to steps, etc.



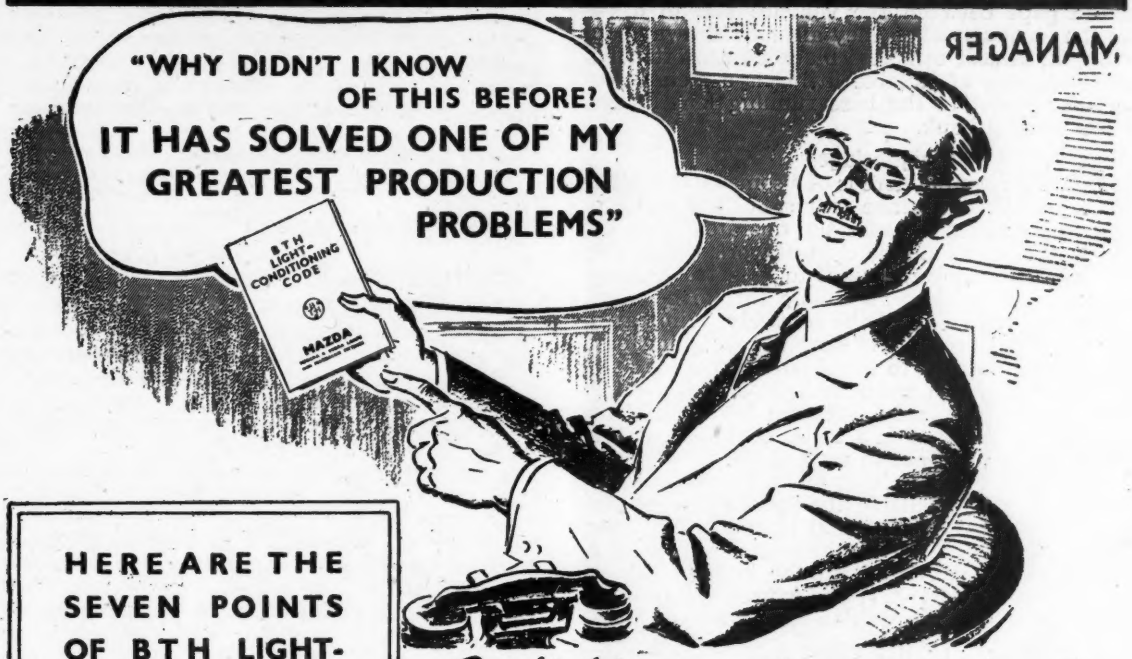
SECTION SHEWING LOADING BANK



Loading Banks.

FIG. 6. FURTHER EXAMPLES OF FITTINGS FOR USE IN LOADING OPERATIONS.

A WAR-WINNING PRESCRIPTION FOR THE FACTORY FRONT


"WHY DIDN'T I KNOW OF THIS BEFORE? IT HAS SOLVED ONE OF MY GREATEST PRODUCTION PROBLEMS"
BTH LIGHT-CONDITIONING CODE
MAZDA
MANAGER

A vital message to management

The Minister of Labour and National Service, in a recent broadcast speech, stressed the urgent need for more workers — especially women — in Great Britain's War Industries. He also appealed to management to look closely to the welfare of employees and to secure their whole-hearted co-operation.

Good lighting, always essential for maximum production, is especially necessary and beneficial to new and semi-skilled workers, who are gravely handicapped by even the slightest difficulty in seeing. The BTH Company has devised a Light-Conditioning Code — a 7 point plan — which, read in conjunction with the Ministry of Labour Lighting Order, 1941, indicates the main factors and requirements in lighting for production.

HERE ARE THE SEVEN POINTS OF BTH LIGHT-CONDITIONING

1. Regard the problem from the workers' point of view rather than from that of the casual observer
2. Eliminate glitter from the work and glitter and dazzle from the local field of view
3. Provide adequate illumination
4. Eliminate dazzle or glitter from the general surroundings
5. Provide reasonable brightness of walls, ceilings or other surroundings
6. Take into account the purely psychological factors by promoting cheerful, comfortable and safe working conditions
7. Employ full engineering and designing skill to keep installation and maintenance costs at lowest level consistent with the best lighting results

"The BTH Light-Conditioning Code with relevant extracts from the Fifth Report of the Departmental Committee on Lighting in Factories" (L702/M) and "A message to Directors and Works Managers explaining how BTH Light Conditioning will increase production" (L709/M) are two folders issued by the BTH Company. Either or both will be sent to you on request.

BTH LIGHTING ENGINEERS ARE ALWAYS AVAILABLE TO TENDER EXPERT ADVICE ON INDUSTRIAL LIGHTING AND TO PREPARE COMPLETE SCHEMES—A SERVICE ENTAILING NO OBLIGATION.

MAZDA LAMPS and MAZDALUX FITTINGS for WAR WORK

M3905

BTH for all Electrical Plant and Equipment

THE BRITISH THOMSON-HOUSTON CO., LTD., CROWN HOUSE, ALDWYCH, LONDON, W.C.2

covered by the roof while the upper part of the opening must be screened with tarpaulins or other material to the level of the top of the vehicles (See "C," Fig. 6). In some instances hinged wooden flaps have been installed which can be lifted or lowered according to the height of the vehicle. In other cases sliding curtains have been provided to close the gaps between the vehicles and to draw across the openings when they are moved away. In this way an almost complete blackout can often be effected. A type of suitable fitting is a metal container with a slot in the base running lengthways with the loading bank.

Weighbridges

The lighting required here is of a somewhat similar nature to that used in crane cabins, but the problem is more complicated because the operator must be able to see his scales and do clerical work within the cabin. He also requires a light to read truck numbers and truck labels. To enable this to be done the internal lights must be entirely eliminated except for small spot lights over the weighing bar, the light being limited to the smallest possible area (See "A," Fig. 7) and a similar light over the entry desk to enable the man to carry out his work. The lamps must be enclosed in a metal container with a small round hole in base to restrict the light to the area required. The windows must be blacked out except for a space to enable the operator to see the side of the truck. The external light to illuminate the side of the truck is sometimes in the form of a car head lamp mask, but with the louvres on the under side (See "B," Fig. 7) and is used only during the time the truck is in position on the weighbridge.

Tippler Plant

After a truck has been reversed and its contents deposited, the base must be inspected to ensure its proper clearance. The light is required in an upward direction, but this cannot be allowed. A fitting has therefore been devised to be fixed adjoining the tipping plant, the bulb of which is enclosed in a metal container of box type with a long slot in base or side with a louvre screen above the slot ("C," Fig. 7). The light from this fitting often requires a certain amount of restriction on account of the presence of buildings in close proximity which would reflect the light from the vertical faces.

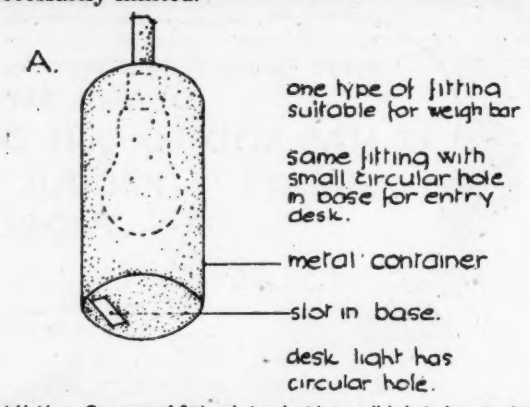
Clocks and Gauges

Different types of clocks and cards are in use, but in all cases it is necessary for the employees to have some illumination to allow them to see their cards or number on the wheel. It is preferable for these instruments to be fixed inside a light lock but this is not always possible; some firms consider the provision of a light lock in these positions to be a source of danger, as there is the possibility of men being crushed in the event of crowding. Several types of fittings have been devised for this purpose, varying from a type of head lamp mask to a closed metal container with circular hole in base. (See "D," Fig 7.) Where the clock is enclosed in a case, a tubular type of fitting can be devised with a slot down the sides.

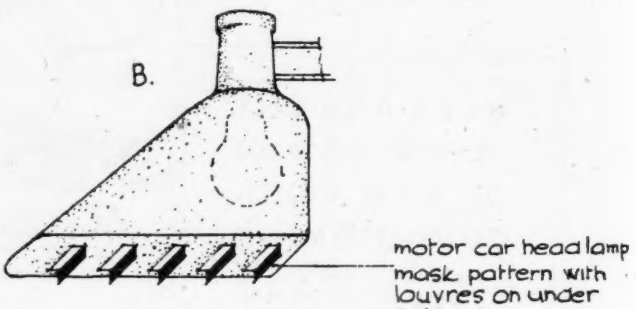
Cycle Sheds

These are in many instances open corrugated iron structures with patent holders taking machines in one or two tiers. Light is required to enable the employees to find their machines and to place or remove them without damage. Bulkhead fittings have been provided in many cases, fixed to the roof of the shed. If the glass bowls are blacked out on the inside except for a small strip running lengthways with the shed, the width of the strip being restricted so that the light spilt on the floor is not more than 2 ft. 6 in. wide, this should meet requirements. A 15 watt lamp will be found sufficient, and should be blacked out on the underside, so that reflected light only passes through the slot. ("E," Fig. 7.)

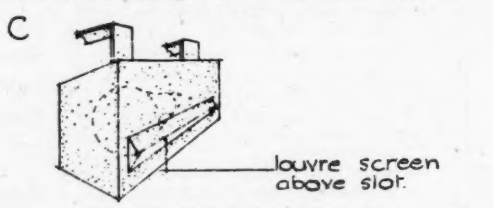
From the foregoing, which covers a small number of the general requirements, it is evident that almost every case requires special treatment according to the use to which the light is to be put, and the conditions which obtain in each particular position. A careful and thorough survey of all relative factors is requisite before arranging the scheme. It must be emphasised, therefore, that the use of standard fittings is necessarily limited.


A.
one type of fitting suitable for weigh bar
same fitting with small circular hole in base for entry desk.
metal container
slot in base.
desk light has circular hole.

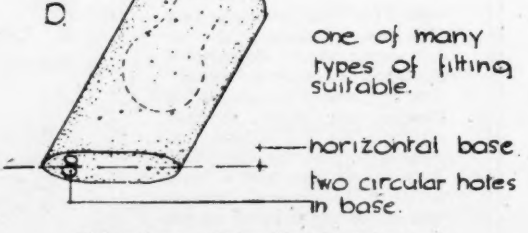
Weighbridges. One type of fitting designed with a small hole in base to give spot-light on to weighing bar; this is to be of the smallest possible area. Another type is designed to restrict light to the area of entry desk.



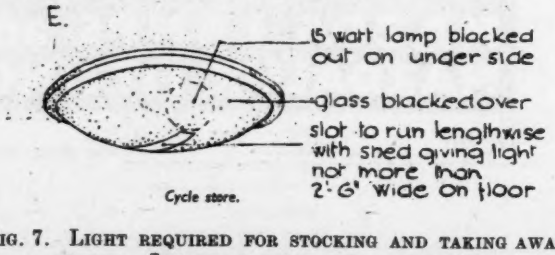
Trucks. Fitting designed for external illumination inside truck.



Tippler plant. Fittings designed to illuminate base of truck for clearing.



Clocks and gauges. Fittings illuminate clock or cards.


E.
15 watt lamp blacked out on under side
glass blacked over
slot to run lengthwise with shed giving light not more than 2'-6" wide on floor

Cycle store.

FIG. 7. LIGHT REQUIRED FOR STOCKING AND TAKING AWAY CYCLES. LIGHTS ON ONLY WHEN NECESSARY.

Photo-Electric Photometers

Members of the Illuminating Engineering Society and others will be interested to hear of a forthcoming lecture by the President of the Society, Professor J. T. MacGregor-Morris, to take place at a meeting of the Physical Society, to be held at 4 p.m. on Friday, October 10.

The lecture, which will be accompanied by demonstrations, will be devoted to "Recent Work on the Use of Photo-Electric (Rectifier Type) Cells in Photometry," is to take place in the Physics Department of the Imperial College (Imperial Institute-road, South Kensington, S.W.7).

Members of the Illuminating Engineering Society are cordially invited to attend.

Photo-Electric Devices for the Detection of Incendiary Bombs

All those concerned with fire watching, and their numbers seem likely to be substantially increased in the near future, must have been struck by one disadvantage of present conditions—the long periods of tedium and inactivity waiting for something to happen. Anything that can be done to diminish the tedium and exposure involved, and to make detection of and location of incendiary bombs more certain, should therefore be welcomed. The application of photo-electric methods, which we understand have been already adopted in some large city buildings on quite an extensive scale, naturally suggests itself in this connection, and a recent British Standard Specification dealing with the performance of such devices is therefore timely.

There are three main types of photo-electric devices dealt with in the Specification, these being photo-conductive cells, photo-emissive cells, and photo-voltaic cells, together with their associated equipments.

The Specification defines the performance of the detector in terms of operating distance, and a standard method of test to determine the operating distance is prescribed. The Specification also lays down various conditions for the general design of the equipment with a view to ensuring reliability in operation, and some instructions are given regarding the method of installation and how to carry out tests after installation.

Copies of this Specification (BS/A.R.P./60) may be obtained from the British Standards Institution, 28, Victoria-street, London, S.W.1., price 6d., post free 8d.

Public Lighting in Leicester

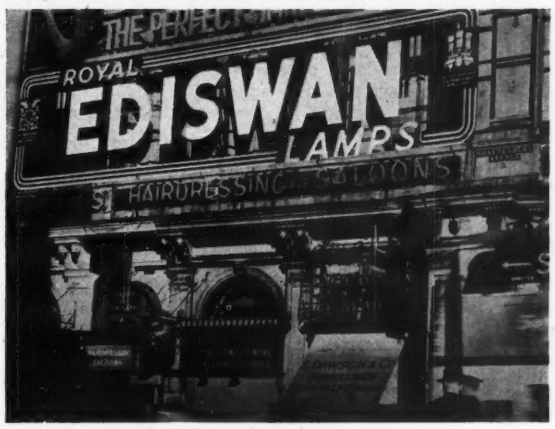
Public lighting in the pre-war sense has naturally ceased to be in Leicester, but the report of the public lighting engineer, Mr. Thomas Wilkie, shows that war-time street lighting has been very completely installed. This step was authorised on April 30, 1940. The first lamps were lighted on August 28, and the city is now completely lighted with a total of 9,320 war-time street lighting units, 5,186 electric and 4,134 gas. The electric fittings utilise 15-watt bulbs in most cases, but in few cases 25-watt bulbs are used. These lamps are lit and extinguished by time switches. The gas fittings use small mantles consuming 1.75 cub. ft. of gas per hour. Owing to the small consumption and the difficulty of lighting and extinguishing, all gas lamps are lit for twenty-four hours a day. Trouble is experienced in maintaining the light output at this low level, and it has been necessary to treat practically every lamp individually.

Complaints have been received of lamps being too bright. In most cases they have no confirmation in fact. It is emphasised that there is no aerial danger from this modified lighting, and throughout the country there is no evidence whatever to prove that a single bomb has been dropped because of it.

An Ediswan Outdoor Sign

There are still some places in England where you may see illuminated signs after black-out. This glimpse of a pre-war spectacle, which helped so largely in the character of London after dark, is provided by the several Ediswan railway station signs which typify the Ediswan publicity policy for the coming season. So far as outdoor publicity is concerned, it is planned to carry on exactly as in peace time, and a new site measuring forty-five by ten feet for a daylight sign has recently been acquired for Royal "Ediswan" lamps, in Piccadilly Circus. We reproduce herewith a view of this sign, the design of which is simple, bold, and dignified, including no more than the slogan "Royal Ediswan Lamps," the coats of arms, and an appropriate border. This is, in the present circumstances, exclusively a daylight sign, but, after the war, adequate arrangements for artificial lighting will be made.

In addition to their usual publicity in the form of literature, window displays, etc., Ediswan are taking advantage of war-time darkness by the introduction of an entirely new idea in Underground publicity—phosphorescent roof cards. These cards, which will



bear quite a terse message, are affixed to the roof of underground electric cars where, high above the dim black-out lamps, they flash a message every time the train enters a tunnel and, as the train emerges, feed themselves again on daylight or artificial light, for further bright efforts.

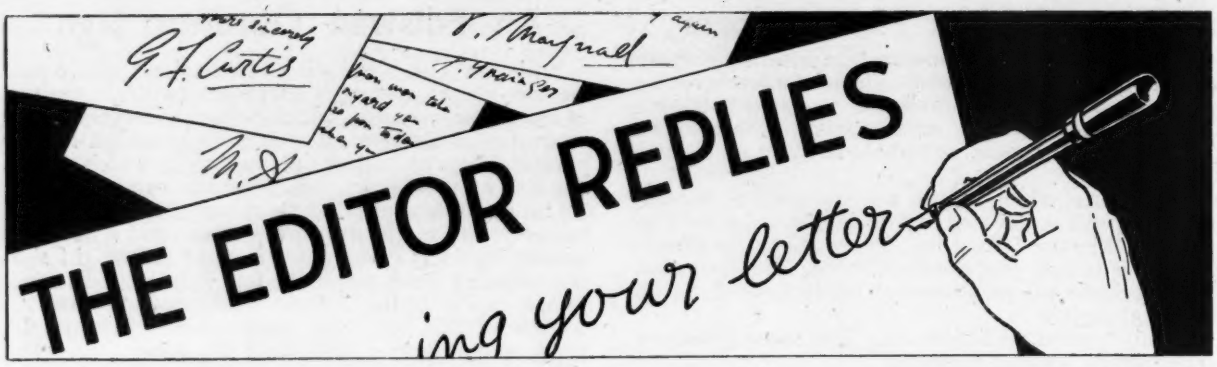
"The Burden of the Black-Out"

Under this title the *Daily Express* (September 18) urged the reconsideration of the black-out. The effect of the black-out on production, it is contended, is definitely bad, owing to the depressing influence on the outlook and output of workers. It has not saved towns or factories from bombs; but it has caused hundreds of road accidents, made millions gloomy, and thousands afraid to go out at all. It delays the transport of night workers to and from factories.

"The miserable and hazardous conditions of darkened streets are no setting to revive the Dunkirk mood. . . . We ask for better light and commonsense use of it in face of air-raid dangers. . . . The negative weapon of blackness has been tried and it has failed. Let us consider using the positive weapon of light. Lights out if the warning goes, but not before, should be the policy."

Thus the *Daily Express*. To this we may add the following footnote from the *Daily Mail* of the preceding day (September 17):—

"Much-blitzed Bristol yesterday decided to spend £20,000 on a 'brighter winter.' Modified street lighting is to be introduced on the theory that 'absence of lighting gave Bristol no immunity from severe air raids last winter.'"



Reverting to the question of **Accidents on the Roads,** it has been suggested that such data should always be correlated with information in regard to the volume of traffic. In a sense this is true. If there are no accidents on a road it does not necessarily show that the lighting is excellent. It might show that the lighting is so bad that it is shunned by all drivers, that there are no cars—and therefore no mishaps!

The difficulty is to establish a proper basis of correlation. Would one expect the number of accidents to be proportional to the number of cars or pedestrians? Not necessarily. The number of accidents occasioned by a convoy of motor vehicles surely does not depend on its length. Probably only the leading car would be concerned. Again, accidents might be less likely with a crowd of pedestrians, who can be easily seen, than with a few at scattered intervals. All this, however, does not invalidate the main contention that the number of night fatalities to pedestrians is excessive, considering how few people attempt to use the roads at night, and that the absence of artificial lighting is an important contributory cause.

It has been announced that, as a trial, motorists are to be allowed the concession of using **two masked headlights** instead of one. The most important resultant gain is doubtless the better distribution of light. In regard to the amount of light it is probable that many drivers could get a far greater increase by bringing their headlights closer to the prescribed limit—in very many cases the available illumination ten feet away is a mere fraction of the 2.5 ft.c. which the Order allows.

This illustrates one evident weakness of the present Order—that it attempts to set an upper limit to the amount of light permissible, but does nothing to prevent the light being dangerously weak. This also applies to side-lights—and above all to **traffic lights,** the maintenance of which is apt to be neglected under present conditions with the result that only a feeble glimmer can pierce the accumulated grime. No wonder that motorists complain that it is impossible to distinguish the red from the green in bright sunlight.

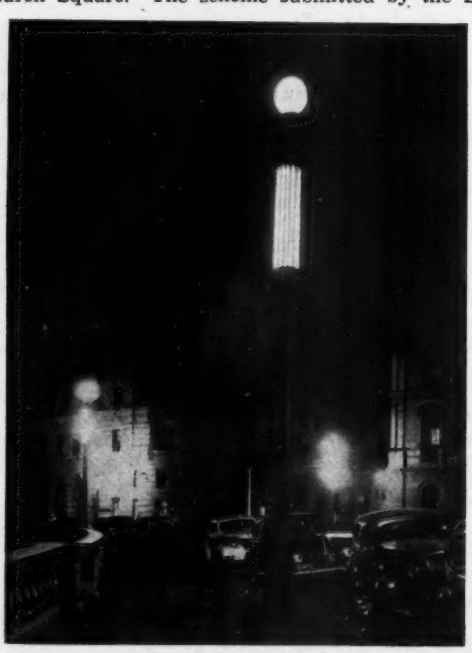
We have been asked what is the position in regard to **illuminated shop-signs and shop-windows,** and whether the concessions embodied in the Order on Restrictions of Lighting (1940) still apply. According to our information the display of signs of a brightness not exceeding 0.02 e.f.c. to indicate the name or purpose of premises, as defined in Section 40, remains permissible. On the other hand Sections 41, 42. and 43 were apparently cancelled in a leaflet issued in May last, so that the lighting of shop-windows, even to the low brightness specified in the Order, is now forbidden.

Some misunderstanding seems to exist in regard to the status of the **I.E.S. "Recommended Values of Illumination,"** generally known as the I.E.S. Code. The Fifth Report of the Departmental Committee on Lighting in Factories, mentioned the code as a generally accepted indication of good lighting practice, and reproduced its broad initial classification of processes and values of illumination in an appendix. Legal effect was given to the main recommendations in the Fifth Report (including the minimum illumination of 6 ft.c.) in the Factories (Standards of Lighting) Regulations which came into force in February of the present year, but in these no explicit mention of the code was made. The application of the code as a part of war-time legislation therefore does not rest upon these Regulations, but on the decision of the Ministry of Supply, the Admiralty, and the Ministry of Aircraft Production to adopt it as a basis of lighting for factories coming under their jurisdiction. Incidentally it should be remembered that the Regulations apply only to factories in which persons are regularly employed for more than forty-eight hours per week—so that many factories, notably the smaller ones, do not come within its scope.

The introduction of detailed legislative requirements in regard to industrial lighting is an important landmark, one of the very few instances of **legislation on lighting**—which will be of great interest in time to come. We should welcome from our readers any instances of local legislation, empowering local authorities to light streets or buildings or prescribing how the lighting should be effected, which would be of great interest to the Lighting Reconstruction Committee.

Distinctive Outdoor Lighting in Pretoria

We illustrate below a distinctive outdoor lighting system installed in Pretoria, South Africa. The Pretoria municipality recently invited competitive designs for the lighting of Church Square. The scheme submitted by the British



A corner of Church Square, Pretoria, by night.

General Electric Company, Ltd., of Johannesburg was interesting and distinctive, in that it employed two forms of discharge lighting. The standard illustrated has a 20 in. sphere at the top, housing a 400-watt Osira h.p. mercury vapour lamp, whilst below are twelve sections of white fluorescent tubing, each six feet in length. The combination of these two systems gives light of a pleasant quality and colour. There are sixty of these units located about 70 ft. apart. A maximum illumination of 2 ft.c. and a minimum of 0.5 ft.c. is provided.

Street lighting in the *Blackout*

The METROVICK STARLIGHT FITTING

is simple to instal, maintain and re-lamp

★ **INSTALLATION**

Standard Units are suitable for a variety of different fittings by means of a series of flexible and rigid connectors.

★ **MAINTENANCE**

The air space around the lamp is sufficient to prevent high temperature rise. No tools are required to undo parts for cleaning. No gauze likely to become choked. No loose glass to break or loose parts to get lost.

★ **EFFECTIVENESS**

A line of these fittings can be discerned up to ten or twelve points ahead and it conforms with BS/ARP.37.

SIZES AVAILABLE

METROVICK STARLIGHT FITTING		
Mounting Height	Size of Lamp	
20 feet	15 Watt or 25 Watt	Standard, Rigid or Flexible Connectors for BC, ES and GES Holders
15 feet	15 Watt or 25 Watt	
10 feet	15 Watt	

METROPOLITAN-VICKERS
ELECTRICAL COMPANY, LIMITED
NUMBER ONE KINGSWAY, LONDON, W.C.2

ASSOCIATED ELECTRICAL INDUSTRIES LTD. AEI

S/Q102

Literature on Lighting

(Abstracts of Recent Articles on Illumination and Photometry in the Technical Press)

(Continued from page 122, August, 1941)

II.—PHOTOMETRY.

201. Low Instensity Illumination Gauge.

Anon. Journal of Scientific Instruments, Vol. XVIII., No. 8, August, 1941.

Describes a visual illumination gauge, made up according to British Standard Specification, BS/ARP 30. The comparison source consists of a diffusing white annulus illuminated by a second annulus of luminous radium compound. Two instruments are available, one giving values 0.2. 0.02, 0.002 ft.c., the other giving 0.1 and 0.001 ft.c. H. J. T.

202. Simple Photo-electric Brightness Meter.

A. C. Poulter. Journal of Scientific Instruments, Vol. XVIII., No. 8, August, 1941.

Describes a simple photo-electric brightness meter for measuring the brightness of printed half-tones in terms of a standard magnesium carbonate test plate or of unprinted paper. H. J. T.

203. Safety in Mines.

Anon. Elect., 127, p. 66, August, 1941.

A brief description is given, from the report of the Safety-in-Mines Research Board, of the method used in measuring low values of illumination in mines. C. A. M.

IV.—LIGHTING EQUIPMENT.

204. New Equipment and Appliances.

Anon. Elect., 127, p. 78, August 8, 1941.

A brief reference is given to an adjustable reflector now available for use with tubular clear and fluorescent lamps. C. A. M.

V.—APPLICATIONS OF LIGHT.

205. Home Lighting.

E. W. Commery. Magazine of Light, X., No. 4, pp. 42-46, June, 1941.

The use of tubular fluorescent lamps in the home are described with the aid of photographs. C. A. M.

206. Factory Lighting.

Anon. Beama Journal, 48, p. 110, July, 1941.

A brief description is given of the new exhibition of factory lighting equipment at the E.L.M.A. Lighting Service Bureau. C. A. M.

207. Store Lighting.

J. J. Tynan. Magazine of Light, X., No. 4, pp. 20-23. June, 1941.

The lighting equipment of a fine art store by the aid of recessed tungsten and fluorescent lamps giving illumination values of 170 ft.c. is discussed. C. A. M.

208. Farm Lighting.

J. F. O'Brien, Karl Staley. Magazine of Light., X., No. 4, pp. 26-27, June, 1941.

The lighting equipment of a dairy barn described has three types of sources of energy—fluorescent lamps, germicidal lamps and sun lamps. C. A. M.

209. Elk Rapids.

H. J. Chanon. Magazine of Light, X., No. 4, pp. 39-41, June, 1941.

The outstanding feature of the lighting equipment of a theatre at Elk Rapids is the use of U.V. sources for fluorescent effects. U.V. sources recessed in the ceiling produce luminescent effects both on the ceiling and on the carpet along the aisles. C. A. M.

YES A POWERFUL ROBUST SELF-SUSTAINING WINCH

Hundreds of thousands supplied during the last 35 years to Govt. Depts., Corporations, Railways, innumerable traders, etc., etc. Will not run back. No wheels to get caught in. *Direct Drive and Ratio Type*

WINCHES

Smallest wall space: side or front driving, also special types including multi-division barrels, combined horizontal and vertical operation, etc.

The London Electric Firm Croydon

Phone: Uplands 4871/2 (2 lines)

NO RATCHETS, PAWLS, SPRINGS, or GEAR WHEELS

210. S.S. City of Midland.

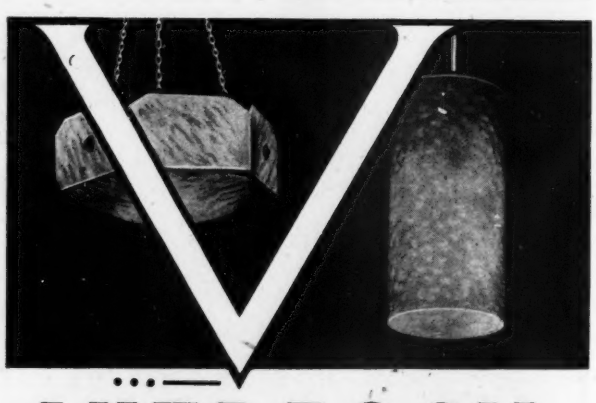
C. W. Maedje. Magazine of Light. X., No. 4, pp. 24-25, June, 1941.

Luminescent lamps are used extensively in the lighting equipment on a ferry-boat on Lake Michigan. C. A. M.

SITUATIONS

Illuminating Engineer required to assist in planning and estimating for lighting specifications. Previous experience essential. Reply, stating age, salary required, and previous appointments, to Box 247, "Light and Lighting," 32, Victoria-street, London, S.W.1.

Electric Lamp Manufacturers require Engineer with experience of high voltage transformers, etc., to take charge of design of discharge lamp apparatus. Apply, Box 248, "Light and Lighting," 32, Victoria-street, London, S.W.1.



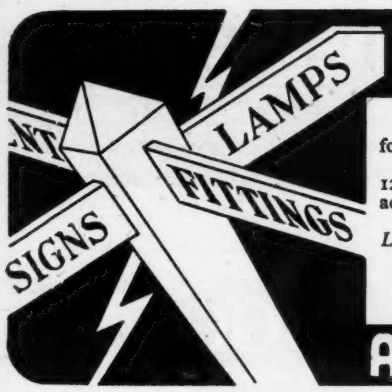
VITREOSIL
TRANSLUCENT
BOWLS *and* CYLINDERS

Improvements in factory lighting have been accelerated by the war. This progress will certainly influence home and other interior lighting arrangements—and increase the use of VITREOSIL translucent bowls and cylinders. They present an exclusive satin-like sheen of unique decorative value in high class interior installations, and allow excellent illumination free from glare.

Sole Manufacturers :

THE THERMAL SYNDICATE LTD.

Head Office and Works: Wallsend, Northumberland
London Depot: 12/14, Old Pye Street, Westminster, S.W.1



WHERE TO BUY

We invite applications for spaces in this new section of the journal. Particulars of terms for each space (approx. 1 inch deep and 3½ inches wide) are given below.

These terms are equivalent to half our ordinary advertising rates, but not less than 12 successive monthly insertions can be accepted on this basis, and amounts are payable in advance.

Payment for an advertisement in this section entitles the advertiser to receive *Light and Lighting* during the period of the contract.

Terms:	**12 Successive Monthly Insertions**	**£3 10 0**	}	**Payable**
	24 " " "	**£6 0 0**		**in**
	36 " " "	**£8 10 0**	}	**Advance**

A DIRECTORY OF LIGHTING EQUIPMENT

1

PHOTOMETER BENCHES Cubes, Spheres, Heads, Standards of Light, Special Accessories

Makers to principal research and technical bodies, lamp manufacturers and educational establishments.

ALEXANDER WRIGHT & CO., LTD.,
WESTMINSTER, S.W.1

2

ALLOM BROTHERS LTD.
LOMBARD ROAD, MORDEN ROAD, S.W.19.
Lighting Specialists
Decorative Fittings. Industrial Fittings
Sheet Metal Work.

3

Take no risks— specify **BENJAMIN PLANNED LIGHTING**
THE BENJAMIN ELECTRIC, Ltd., TARIFF ROAD, N.17

4

LIGHT-CONDITION your industrial plant with the following BTH Equipment :—
MAZDA or MERCRA or SODRA Lamps in MAZDALUX Reflectors.
The free advisory services of BTH Lighting Engineers are at your command
THE BRITISH THOMSON-HOUSTON CO., LTD., Crown House, ALDWYCH, W.C.2.

5

THE REINFORCED CONCRETE LAMP COLUMN SPECIALISTS
CONCRETE UTILITIES, Ltd., WARE, Herts.
Enquire for details of "Aids to Movement" in concrete.

6

DRAKE & GORHAM LTD.
36, GROSVENOR GARDENS, LONDON, S.W.1
and Branches - - - - - - - - -
Specialists in Factory Lighting and in all problems Relating to the Requirements of the New Factory Act

7

Metal SPINNING, SHEET-METAL WORK PRESS WORK, WELDING
Vitreous Enamelling Brass Foundry, and Machining.
ELM WORKS Ltd. SUMMERSTOWN, S.W.17 EST. 1903

FITTINGS ELECO FOR EVERY INDUSTRIAL REQUIREMENT
ENGINEERING & LIGHTING EQUIPMENT CO. LTD
SPHERE WORKS ST. ALBANS HERTS. TELE. 2258/9

9

EEL REGISTERED **THE SELENIUM PHOTO-CELL**
ARTHUR E. EVANS & CO., LTD. BISHOP'S STORTFORD, HERTS

10

PHOTOMETERS
PHOTO-ELECTRIC
BENCH, CUBE, STREET and PORTABLE TYPES
FOR CANDLE-POWER AND ILLUMINATION TESTS
EVERETT EDGCUMBE Colindale Works LONDON, N.W.9

11

THE GUNFIRE (Trade Mark)
PIONEERS of AUTOMATIC LIGHTING
GAS CONTROLLERS, ELECTRIC, and SYNCHRONOUS TIME SWITCHES
Manufactured by :—
BRITISH, FOREIGN AND COLONIAL AUTOMATIC LIGHT CONTROLLING CO., LTD., BOURNEMOUTH

12

SCIENTIFIC Holophane TRADE MARK **ILLUMINATION**
The Hall-Mark of Good Lighting

13

NEWBRIDGE HBE
After the war we hope to serve public lighting engineers by producing even better NEWBRIDGE gas controllers and Comets and H.B.E. electric time switches than in the past.
'Grams: Horstmann, Bath **THE HORSTMANN GEAR CO., LTD., NEWBRIDGE WORKS, BATH, SOMERSET** 'Phone: 7241/2

14

C. H. KEMPTON & Co. LTD., FOR MODERN STREET LIGHTING BY GAS
70-72, BENNERLEY ROAD, S.W.11

15

LIGHT and **LIGHTING** by **LINOLITE**

16

MECHANICAL M-C COMPONENTS
BRITANNIA WORKS TOLLINGTON PLACE, N.4.
SPINNINGS IN ALL METALS / SHEET-METAL AND PRESS WORK / WELDED, BRAZED AND SOLDERED ASSEMBLIES / POLISHING AND SPRAY FINISHING
Tel.: ARCHWAY 4714 P.B.Ex.

17

MEK-ELEK Engineering Ltd.,
17, Western Road Mitcham, Surrey
MITcham 3072. Cables: Mekelek, London

18

F. H. PRIDE LTD.
ILLUMINATING ENGINEERS
CINEMA & HOTEL LIGHTING SPECIALISTS
Designers and Manufacturers of Modern Lighting Fitments and Electrical apparatus
69-81, CLAPHAM HIGH ST., S.W.4 Telephone: MACaulay 2281/4.

19

LIGHT RAY APPARATUS
Control of Street, Factory and Sign Lighting.
Smoke Indicator and Recorder.
Automatic Fuel Feed Control.
RADIOVISOR PARENT LIMITED,
Stanhope Street, London, N.W.1.
'Phone: EUSton 5905/6.

20

REGD. TRADE MARK
NIPHAN
PLUGS, SOCKETS, TEES, COUPLINGS, TERMINAL-SOCKETS AND JOINT BOXES
for every portable and temporary lighting requirement
SIMMONDS & STOKES LTD.
VICTORIA HOUSE, SOUTHAMPTON ROW, LONDON, W.C.1
Phones: (Head Office) Holborn 8637 & 2163

21

ELECTRIC LAMPS *of all types*
"SIERAY" ELECTRIC DISCHARGE LAMPS
ELECTRIC LIGHT FITTINGS
SIEMENS
STORE & INDUSTRIAL LIGHTING EQUIPMENT
CINEMA LIGHTING, etc.
38-39, UPPER THAMES STREET, LONDON, E.C.4

22

WASK
PATENT SELF SUSTAINING WINCHES
FOR ALL PURPOSES
Quick hoisting with little effort
MADE IN TWO SIZES
Walter Slingsby & Co. Ltd., Keighley
Tel.: Keighley 3749 (2 lines)

23

STRAND ELECTRIC
AND ENGINEERING Co. LTD.
SPECIALISTS IN COLOUR LIGHTING and STAGE EQUIPMENT
LIGHTING FOR EVERY OCCASION
THEATRES: EXHIBITIONS
FLOODLIGHTING: CINEMAS
BALLROOMS: PAGEANTS
19-24 FLORAL ST. LONDON, W.C.2

24

For every type of GAS LIGHTING
SUGG WESTMINSTER
When you want the best!
CHAPTER ST., S.W.1

25

"THORLUX"
"OVERLAMP" REFLECTORS.
DISCHARGE or GASFILLED LAMPS
SLIP-IT-ON—SLIP-IT-OFF-OVER THE LAMP FOR CLEANING
F. W. THORPE LTD. WELBY ROAD HALL GREEN BIRMINGHAM, 28.
FOR EASY MAINTENANCE THE BEST

26

WARDLE ENGINEERING Co., Ltd.
OLD TRAFFORD, MANCHESTER, 16.
PRISMALUX DIRECTIONAL LIGHTING UNITS
for stairways, corridors and doorways
Also for A.R.P. Shelters and tunnels.

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N.B.—The numbers are those attached to individual entries in the Directory (See pp. 139—140)

Autumn Electric Lamp Publicity

It is an encouraging sign that, after the second year of war the usual autumn effective publicity efforts on behalf of electric lamps are still in evidence. We have before us specimens of displays and folders being issued by the leading firms which show considerable ingenuity and variety. The British Thomson Houston Company, Ltd., have prepared a series of distinctive advertisements introducing pictures and quotations from Dickens, as well as their "stamp" and "clock" window dressing displays. The G.E.C. have likewise new window dressing designs for blitzed windows ("Light Up and Smile"). Crompton, Parkinson, Ltd., continue their striking series of shadow pictures with new layouts underlining the phrase "You Need a Good Light—You Need a Crompton." In addition to their series of advertisements, Metropolitan Vickers are issuing a folder illustrating fittings for use in the present factory lighting campaign. We refer elsewhere (p. 135) to Ediswan publicity.